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Developing dengue index through the integration of crowdsourcing approach (X-Waba) (Conference Paper) (Open Access)

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Abstract

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This research aims at improving the existing dengue indices by developing an algorithm that would use the variables affecting positively the vector's lifecycle and monitoring them daily to generate an improved Dengue Index that would help forewarn on the high possibility of a dengue outbreak. Researchers attempted to identify the factors influencing the behaviour of the mosquito carrier of the virus in the epidemiological context by generating indices based on the number of traps set within a small urban area or based on the number of mosquitoes caught in a household. The House (premise) Index (HI), the Container Index (CI) and the Breteau Index (BI) have been described as not effective in predicting dengue outbreaks. The main drawback of these methods is the fact that they do not consider other variables associated with the vector's lifecycle, landing habit and geographical extents. The developed index would use crowdsourcing data as an additional tool for the citizens to get involved in providing spatial information and specific attributes for more accurate predictions. Using the data published by the ministry of health Malaysia in the years of 2014 and 2015 for the state of Selangor, the federal territories of Kuala Lumpur and Putrajaya compared with other data: namely, the temperatures, rainfall and moon cycles. Our findings using the time series method of the improved dengue index show a correlation with the dengue cases time series. The crowdsourcing app would in the future further enhance the identification of the hot spots with high dengue fever probabilities. In conclusion, displaying spatially on a map such forecasts approximately 50 days before the occurrence of the outbreak would be beneficial for authorities to carry out preventive measures. © Published under licence by IOP Publishing Ltd.

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[Accurate prediction](#) [Dengue fever](#) [Hot spot](#) [Malaysia](#) [Preventive measure](#) [Spatial information](#) [Time series method](#) [Urban area](#)

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